5699

OPERABLE UNIT ONE COMPLEX IMPLEMENTATION PLAN

DOCUMENT NUMBER 15000-PL-0001 (REV. 0) PCN1

PAGE CHANGES

INCLUDES:

COVER PAGE/RECORD OF REVISION

PAGE 7/8

PAGE 11/12

APPENDIX A, PAGE 1/2

ADDITIONAL COPIES

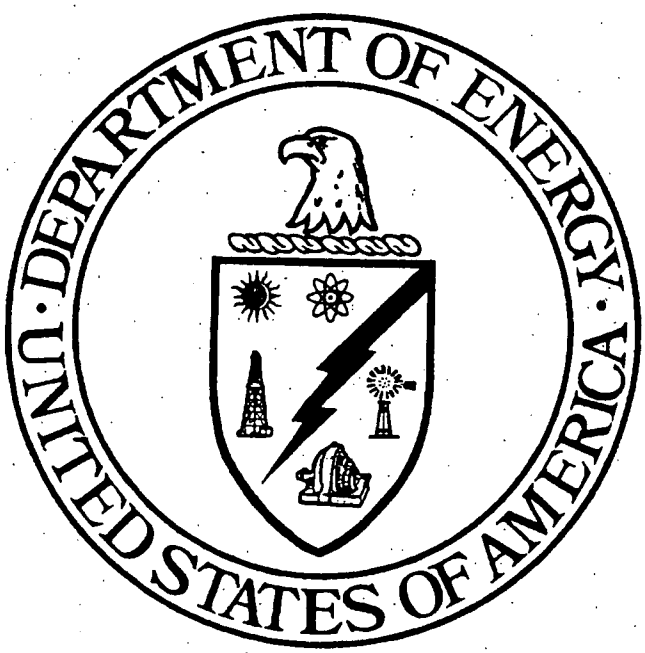
INCLUDES:

PAGE 29/30 – FIGURE 4-1

5699

OPERABLE UNIT 3

OPERABLE UNIT 1 COMPLEX IMPLEMENTATION PLAN FOR ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT



SEPTEMBER 2004

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

U. S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

FINAL

DOCUMENT CONTROL NO. 15000-PL-0001 (REV. 0) PCN1

RECORD OF ISSUE/REVISION

DATE	REVISION NO.	DESCRIPTION AND AUTHORITY
7/1/04	Rev. 0	Issued Final Implementation Plan
9/16/04	Rev. 0, PCN1	Table 2-1 has been changed to show Category C debris to be containerized in railcars (with no interim storage) for shipment to Envirocare. The last sentence of Paragraph 2, Section 2.3.4 on Page 7 has been changed to read: "Debris that exceeds the OSDF Waste Acceptance Criteria will be placed in railcars for shipment to Envirocare." Appendix A, under the "Nevada Test Site (NTS) Confirmatory" title has been changed to read: "At this time, it is anticipated that NTS will not be a disposal facility for any OU1 debris. No sampling of any material/waste stream will be performed." Added Paragraph 2 to Appendix A, under the"Asbestos" title which reads: "Upon evaluation of the OU1 Complex for the presence of ACM, if the evaluation reveals that ACM is present, this plan will be revised to discuss the location and volume of ACM that will require abatement and the associated impact, if any, on the decontamination and dismantlement schedule." Added as the last sentence to the 2nd from last paragraph, Page 12 of Section 2.4 which reads: "Upon completion, final survey results and the modeled predictions will be provided to the regulatory agencies." Appendix A, added new heading titled "Technetium 99" and text which reads: "Prior to D&D activities, the Material Handling Building (91B) concrete will be analyzed for Tc-99. The floors of the load-out bins are the most likely surfaces to be contaminated with Tc-99. Other areas should be evaluated based on process knowledge for the potential to be contaminated with Tc-99 and sampling results from the load-out bins. A sampling plan will be developed, cores will be obtained and Tc-99 activities will be measured as a function of depth below the surface of the concrete. The data will be used to calculate the WPRAP D&D Projects total Tc-99 mass-loading to the OSDF. The concrete will not be placed in the OSDF until after WAO has determined that the total Tc-99 mass including the contribution from the WPRAP D&D meets the requirements of the OU5 ROD for OSDF WAC of Tc-99."

analytical data and process history. Section 2.4 further discusses wastewater monitoring strategies. The ultimate disposition of wastewater into the WWTS is managed in accordance with existing site procedure EP-005 "Controlling Aqueous Wastewater Discharges into Wastewater Treatment Systems".

2.3.3 Estimates of Material Volumes

Materials to be generated during this project have been categorized using the same classification system that was developed for and described in the OU3 RI/FS & OU3 Integrated RD/RA Work Plan (DOE 1997b) and are estimated in Tables 2-1, 2-2, and 2-3.

2.3.4 Material Handling, Storage, Treatment, and Disposition

Materials generated from the D&D of the OU1 Complex will be reduced in size, segregated, and containerized in accordance with the requirements identified in the MSCC form. Quantities and disposition of specific material categories were documented in the PWID form for internal use. Tables 2-1, 2-2, and 2-3 summarize the MSCC and PWID by identifying quantities, containerization, staging/interim storage, and disposal requirements for each category of material. Debris size requirements are described in Sections 3.3.2.1 and 3.3.6.2 of the OU3 Integrated RD/RA Work Plan.

As stated in Section 3.3.2.2 of the OU3 Integrated RD/RA Work Plan, materials will be identified according to the OU3 debris categories identified in the MSCC. The MSCC for the OU1 Complex allows for commingling of OU3 debris categories A, B, D and incidental E into the same Roll-Off Boxes (ROBs) or articulating dump trucks since each of these material types conform to OSDF Impacted Material Category 2. The majority of Debris Category E (concrete), however, will be placed in separate ROBs or articulating dump trucks. Commingling of OU3 debris categories A, B, D and incidental E is being done to conform to the OSDF impacted material categories in order to facilitate placement. By allowing the commingling of these types of debris into the same ROB or articulating dump truck, there will be more efficient use of a limited number of available ROBs or articulating dump trucks at the FCP. Materials will be containerized inside the project boundaries adjacent to structures being dismantled. Should any materials be encountered that do not meet the OSDF waste acceptance criteria (e.g., materials with "visible process residues" such as yellow cake, black oxide, green salt, etc.) as defined in Specification Section 01120, they will be segregated from OSDF-bound materials. Debris that exceeds the OSDF Waste Acceptance Criteria will be placed in railcars for shipment to Envirocare. **PCN1**

TABLE 2-1 OU1 Complex Bulked Material Volume Estimates (yd^3)

Component Number	OU3 Debris Categories								Totals
	Cat. A	Cat. B	Cat. C	Cat. D	Cat. E	Cat. F, G & H	Cat. I	Cat. J	
91A	500	2130	0	150	100	N/A	100	2	2982
91B	150	4100	65	126	2000	N/A	310	3	6754
91C	350	1950	0	30	550	N/A	100	2	2982
91D	30	620	0	150	0	N/A	65	0	865
91E	50	250	0	30	0	N/A	45	0	375
91F	20	200	0	30	0	N/A	41	0	291
91K	225	630	0	0	36	N/A	30	2	923
Complex Total	1325	9880	65	516	2686	N/A	691	9	15,172
Container/ Quantity	ROB	ROB	Railcar	ROB	ROB WMB	N/A	ROB	WMB DM	
Interim Storage	OSDF Transfer	OSDF Transfer	N/A	OSDF Transfer	OSDF Transfer	N/A	OSDF Transfer	OSDF Transfer	
Disposition	OSDF	OSDF	Envirocare	OSDF	OSDF	N/A	OSDF	OSDF	

PCN1
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General Notes:

OU3 Debris Categories: Cat. A – Accessible Metals; Cat. B – Inaccessible Metals; Cat. C – Process-Related Metals; Cat. D – Painted Light Gauge Metals; Cat. E – Concrete; Cat. F – Brick; Cat. G – Non-Regulated ACM; Cat. H – Regulated ACM; Cat. I – Miscellaneous Materials; Cat J – Special Handling.

ROB: Roll-Off Box holds 30 cubic yards (810 cubic feet) and/or 16.95 tons of material; **ISO:** End-Loading Container/Sea Land boxes, holds up to 36 cubic yards (971 cubic feet) and/or 42,000 lbs. of material. **WMB:** White Metal Box holds 80 cubic feet with a weight restriction of 8000 pounds. **DM:** 55-Gallon Drum

OSDF Transfer: On-site Disposal Facility Transfer area. Refers to direct disposal in the OSDF; however, the ability to deliver debris directly to the OSDF Transfer Area is dependent on whether the OSDF is accepting debris and/or availability of containers (ROBs) for transport. If necessary, Category A, B, D, and E debris may be temporarily stockpiled on the Pilot Plant Pad at project completion.

TABLE 2-2 OU1 Complex Unbulked Material Volume Estimates (yd^3)

Component Number	OU3 Debris Categories								Totals
	Cat. A	Cat. B	Cat. C	Cat. D	Cat. E	Cat. F, G & H	Cat. I	Cat. J	
91A	100	710	0	50	100	N/A	25	2	987
91B	30	1366	21	42	2000	N/A	77	3	3539
91C	70	650	0	10	550	N/A	25	2	1307
91D	6	206	0	50	0	N/A	16	0	278
91E	10	83	0	10	0	N/A	11	0	114
91F	4	66	0	10	0	N/A	10	0	90
91K	45	210	0	0	36	N/A	7	2	300
Complex Total	265	3291	21	172	2686	N/A	171	9	6615

General Note

Refer to Table 2-1 for OU3 Debris Category descriptions.

TABLE 2-3 OU1 Complex Material Weight Estimates (Tons)

Component Number	OU3 Debris Categories								Totals
	Cat. A	Cat. B	Cat. C	Cat. D	Cat. E	Cat. F, G & H	Cat. I	Cat. J	
91A	133.3	142	0	9.4	45.4	N/A	20	1	351.1
91B	40	273.3	4.3	7.9	909	N/A	62	1.5	1298
91C	93.3	130	0	1.9	250	N/A	20	1	496.2
91D	8	41.3	0	9.4	0	N/A	13	0	71.7
91E	13.3	16.6	0	1.9	0	N/A	9	0	40.8
91F	5.3	13.3	0	1.9	0	N/A	8.2	0	28.7
91K	60	42	0	0	16.4	N/A	6	1	125.4
Complex Total	353.2	658.5	4.3	32.4	1220.8	N/A	138.2	4.5	2411.9

General Note:

Refer to Table 2-1 for OU3 Debris Category descriptions.

The current project strategy for managing debris is to deliver containerized debris directly to the OSDF Transfer Area; however, stockpiling of Category A, B, D and E debris for interim storage is a possibility due to the limited number of ROBs at the FCP. Stockpiling of debris, if

those twenty-five samples, one will be a duplicate for quality assurance/quality control purposes. The purpose of the sampling is to ensure the adequacy of treatment capacity so that National Pollutant Discharge Elimination System (NPDES) permit requirements are met.

Project-specific reporting for wastewater will be provided in the project completion report. The report will include a summary of the data generated during the project. The report will include a summary of the results from sampling and analysis prior to its discharge into the WWTS.

Radiological Air Monitoring

Occupational monitoring will be performed using personal and workplace air samplers in the work areas to ensure worker protection and will also serve as an indication of the effectiveness of engineering controls. Section 8.1 of the OU3 RD/RA Health and Safety Plan (Appendix E of the OU3 Integrated RD/RA Work Plan) describes the occupational air-monitoring program.

Environmental radiological air monitoring during the D&D of the OU1 Complex project will consist of the Fernald Site Environmental Monitoring Program described in the site-wide IEMP, and discussed in Sections 3.5.2 and 3.6.2.2 of the OU3 Integrated RD/RA Work Plan. FCP boundary monitors are shown in Figure 2-1.

The need for a supplemental environmental radiological air-monitoring program for this D&D project will be evaluated by modeling the potential release of radiological contaminants from the buildings and components during D&D. It is anticipated that results of the modeling effort will reveal negligible emissions and therefore, supplemental radiological monitoring will not be warranted.

Computer modeling of potential thorium emissions from OU1 structures will be performed using the CAP88PC method to measure potential dose impacts from the project. CAP88PC is the personal computer version of the U.S. EPA model CAP88 that is the approved method for predicting dose impacts to off-site personnel from emissions of radionuclides under the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) regulations. It is emphasized that the CAP88PC model is being used as a tool to assess potential dose to off-site personnel from radionuclide emissions from a project in order to identify potential mitigative controls and supplemental monitoring measures; it is not being used as a means to demonstrate compliance with NESHAPs Subpart H. The method to be used for demonstrating NESHAPs Subpart H compliance is presented in the IEMP as a collective sitewide strategy.

The CAP88PC modeling methodology is prescribed by the U.S. EPA reference manual: U.S. EPA User's Guide for CAP88, Version 1.0, 402-B-92-001. Computer modeling of potential radiological emissions from OU1structures will use radiological smear data to provide a more realistic measure of removable alpha, beta, and gamma contamination rather than fixed contamination for estimating contaminant release. The removable contamination data that will be obtained through smear sampling represents a model input that depicts worst-case emissions since it represents removable contamination present prior to the decontamination

activities.

The modeling methodology will assume no controls on emissions release, such as HEPA filters on containment ventilation systems and a percentage (of removable contamination) that would become airborne during D&D activities. Potential emissions sources will be treated as being in readily dispersible forms. The results of the computer modeling will indicate that the maximally exposed individual would theoretically be located approximately "X" meters in a "to be determined " direction away from the project area and would potentially receive a maximum Total Effective Dose Equivalent of "X" mrem/year from the D&D activities.

Radiological survey data will be used for the air emissions modeling input. Just prior to D&D, OU1 structures will undergo a final survey so that the air emissions modeling can be performed based on the final survey results. So, results of the air emissions computer modeling for OU1 structures will not be presented in this implementation plan. Based on a future review of the computer modeling results, it is anticipated that no supplemental environmental air monitoring will be required for the OU1 Complex D&D activities. Upon completion, final survey results and the modeled predictions will be provided to the regulatory agencies. **PCN1**

Further justification for not providing project specific air monitors comes from analysis of data from the Plant 7 Dismantling - Removal Action No. 19 Final Report (DOE 1995), the Project Completion Report for Building 4A (DOE 1997b), the Plant 1 Complex - Phase I Project Completion Report (DOE 1997c), and the Thorium/Plant 9 Complex Project Completion Report (1999), which have shown that dismantlement activities resulted in negligible airborne radiological contaminant emissions. Results for airborne uranium contamination during those projects have been approximately 5 percent of the DOE maximum off-site guidelines of 0.1 pCi/m^3. The relationship between pCi/m^3 and mrem/year may be understood by the conversion factor used to equate the two terms at the FCP: if inhaled continuously (24 hours/day, 36 days/year), 0.1 pCi/m^3 of uranium in air will result in a dose of 100 mrem/year. It should be noted that various assumptions have been incorporated into this conversion factor. Mitigative measures that might be employed in the event of exceedence of the set criterion would include an increase in engineering and administrative controls during a particular task that has been identified as the cause or possible cause of the elevated radiological levels. Such controls could include negative pressure within an enclosed work area using additional HEPA filtration units or additional surface cleaning (wash) steps before removing material from the containment area.

APPENDIX A
PROPOSED SAMPLING

Several types of sampling were identified early in the design process to support both the design itself and to support logistical planning for field remediation. The scope and requirements for potential D&D sampling were outlined in the Sampling and Analysis Plan, included as Appendix D to the OU3 Integrated RD/RA Work Plan. A project-specific summary of the sampling types are included below.

Characterization Screening

Due to recent construction, there is a remote possibility of lead base paint on painted steel. Lead screening will be performed to verify lead is not present in the painted steel.

The OU1 Complex may be sampled for heavy metals during demolition based on sampling information gathered during operations.

Just prior to D&D activities, radiological surveying will be conducted for fixed and removable radioactive contamination using both Geiger-Mueller radiological contamination meters and scintillation counters (to monitor alpha) as well as low background counting systems. Radiological surveying will continue to be used throughout D&D activities to verify that radiological facility release criteria (i.e., release from containment) are met on equipment and materials being removed from the project containment.

Asbestos

Due to support facility construction in recent years, it is anticipated that there will be no friable asbestos containing materials (ACM) present in the OU1 Complex. Prior to demolition activities, the OU1 Complex will be evaluated for ACM by a State of Ohio-Certified Asbestos Hazard Evaluation Specialist. Results of the evaluation will be used to determine asbestos abatement requirements for the OU1 Complex D&D activity. The results of this evaluation will be forthcoming and therefore are not available to be presented in this implementation plan. If required, sampling criteria for asbestos abatement activities will be established just prior to the OU1 Complex D&D activities.

Upon evaluation of the OU1 Complex for the presence of ACM, if the evaluation reveals that ACM is present, this plan will be revised to discuss the location and volume of ACM that will require abatement and the associated impact, if any, on the decontamination and dismantlement schedule. **PCN1**

Secondary Waste (Decontamination Water)

Based on worst-case wash-down calculations, up to 50,000 gallons of decontamination washwater could be generated during equipment cleaning. Samples will be used to determine the need for treatment prior to discharge into the AWWT. Based on this worst-case washwater volume estimate, twenty-five samples would be needed to characterize washwater for isotopic radionuclides & heavy metals, up to thirty-six samples would be needed to evaluate enrichment (i.e., levels of Thorium 230).

A project-specific sampling plan for the decontamination washwater will be developed after decontamination washwater is generated but prior to actual sampling. An example of a

typical wastewater sampling plan is attached to Appendix D of the OU3 Integrated RD/RA Work Plan.

Nevada Test Site (NTS) Confirmatory

At this time, it is anticipated that NTS will not be a disposal facility for any OU1 debris. No sampling of any material/waste stream will be performed. PCN1

Permitted Off-site Commercial Disposal Facility

Sampling is anticipated from potential mixed waste sludge that will be collected from the settling of decontamination washwater and associated filtercake. Sampling and analysis required for shipment certification will be as specified by the permitted facility's WAC. Section 3.2.3 of the SAP contained in Appendix D of the OU3 Integrated RD/RA Work Plan addresses analytical requirements for off-site disposal.

Asbestos Air Monitoring

If friable and non-friable ACM is discovered, asbestos air sampling will be necessary for ACM removal prior to dismantlement under controlled abatement methods per Specification Section 01516 and 07415. If required, occupational air sampling for asbestos will be performed as required by OSHA standards.

Radiological Air Monitoring

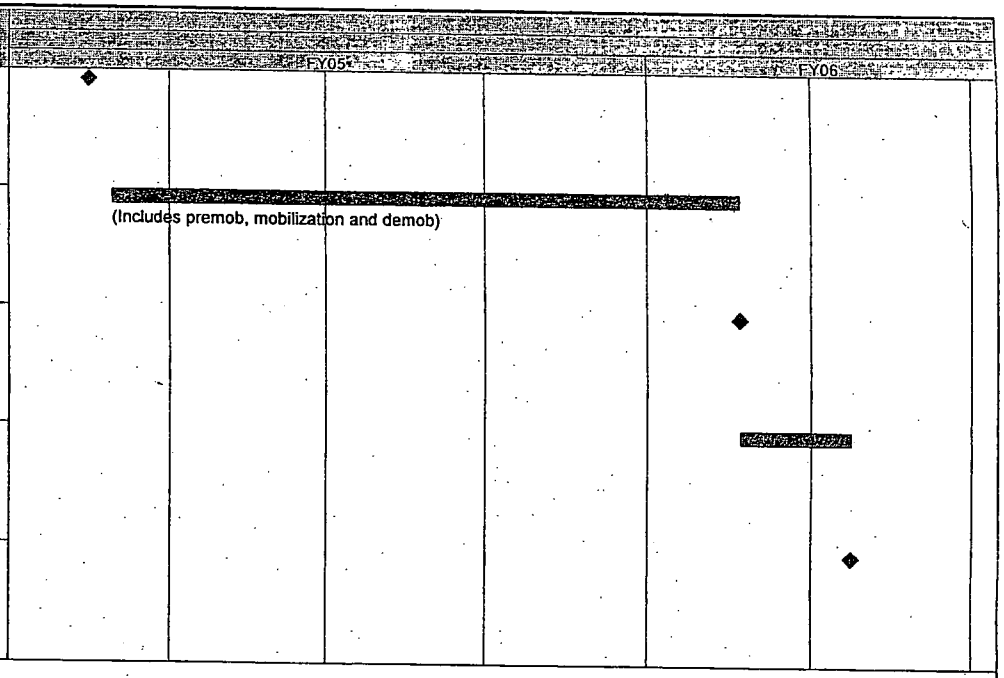
Data from the IEMP site-wide routine environmental air-monitoring program will be used to complement the occupational air-monitoring program. Per the Fluor Fernald Radiological Control Requirements Manual, occupational air (i.e., breathing zone) samplers will be worn as necessary by workers to evaluate the potential for intake when performing airborne radioactivity generating activities in a contamination area, high contamination area or an airborne radioactivity area. Per the Fluor Fernald Radiological Control Requirements Manual, occupational air (i.e., breathing zone) samplers will be worn by one hundred percent (100%) of the workers in each work group/crew when performing thorium airborne generating activities in a contamination area, high contamination area, or an airborne radioactivity area, unless otherwise specified on the appropriate Radiological Work Permit.

Fluor Fernald reviews safe work plans to ensure that they include the appropriate engineering and administrative controls to mitigate the spread of radiological contamination and limit airborne radioactivity concentrations to levels at or below those specified in the IFB/RFP. Fluor Fernald performs an occupational ALARA review or evaluation (as appropriate) for each component undergoing D&D.

Technetium-99 PCN

Prior to D&D activities, the Material Handling Building (91B) concrete will be analyzed for Tc-99. The floors of the load-out bins are the most likely surfaces to be contaminated with Tc-99. Other areas should be evaluated based on process knowledge for the potential to be contaminated with Tc-99 and sampling results from the load-out bins. A sampling plan will be developed, cores will be obtained and Tc-99 activities will be measured as a function of depth below the surface of the concrete. The data will be used to calculate the WPRAP D&D Projects total Tc-99 mass-loading to the OSDF. The concrete will not be placed in the OSDF until after WAO has determined that the total Tc-99 mass including the contribution from the WPRAP D&D meets the requirements of the OU5 ROD for OSDF WAC of Tc-99.

Activity Description	Early Start	Early Finish
NOTICE TO PROCEED	16NOV04*	
FIELD REMEDIATION OF OU1 COMPLEX	29NOV04*	21NOV05
COMPLETION OF FIELD ACTIVITIES		21NOV05
PREPARE PROJECT COMPLETION REPORT	22NOV05	23JAN06
SUBMIT PROJECT COMPLETION REPORT TO USEPA/OEPA		23JAN06



FERNALD Closure Project

Start Date	01AUG04
Finish Date	23JAN06
Data Date	01AUG04
Run Date	01JUL04 07:59

OU1D

OPERABLE UNIT 3
D&D SCHEDULE
OU1 COMPLEX

Sheet 1 of 1

Early Bar
Progress Bar
Critical Activity

FIGURE 4-1 OU1 Complex Remediation Schedule

5.0 MANAGEMENT

The implementation of the OU1 Complex D&D project will be performed through a coordinated effort by the Fluor Fernald self-perform project team, Fluor Fernald Project Management and support organizations, and DOE Project Management. Section 7 of the OU3 Integrated RD/RA Work Plan provides the overall management structure applied to this remediation project. A description of project-specific management responsibilities has been highlighted for the OU1 Complex in this section.

DOE will provide direct project oversight in two ways, both of which become a concerted effort to ensure that remedial activities are performed according to project specifications and requirements. The DOE Office of Operations Assurance has assigned a Facility Representative from the Fernald Field Office whose responsibilities will be to perform independent field oversight of all remedial activities performed under this project. This individual will be responsible for weekly coverage of all field activities and necessary reporting to the DOE –FCP Site Manager. The Facilities Representative will have the authority to stop work if conditions warrant such action. DOE- FCP will also conduct field oversight in the areas of construction, engineering, quality assurance, and health and safety. The DOE Facilities Representative and others will immediately notify the DOE Project Manager of any issues or problems that arise in an effort to seek prompt resolution.

The DOE Project Manager and the environmental management contractor, Fluor Fernald, will oversee the remedial action through its project team review and approval process and by performing the following functions:

- ensuring that the Fluor Fernald self-perform project team is provided with the proper direction and support necessary to meet the remedial action objectives for this project;
- detailing all work conditions and scope requirements;
- conducting an alignment meeting where all project personnel will be instructed on the work control documents, pre-construction meetings, daily pre-work scope and safety briefings, and weekly project team meetings to address all concerns, schedule status, planning, progress, and deviations;
- performing quality assurance and quality audits of all remediation tasks to determine adherence to project specifications;
- verifying work is performed in compliance with approved health and safety plans; and
- performing pre-final and final inspections.

The Fluor Fernald self-perform project team will perform D&D of the components, material sizing, segregation, and loading into containers and/or stockpiling. FCP Waste Generator Services personnel will perform transport of containers to and from the project area.